

# THE SCHOOL ARTS BOOK

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## CONSTRUCTIVE DRAWING

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THE term Constructive Drawing is employed to designate that kind of drawing which precedes construction or the making of things. Its aim is to express clearly the facts of size and shape of something to be made.

A constructive drawing — sometimes called a geometric, mechanical, or working drawing — is not a picture, nor is it a decoration; its test is adequacy. Does it give all necessary facts? Is it accurate? Could a workman produce the thing with this as a guide? In training children to understand and appreciate constructive drawings it is folly to stop short of the thing itself. The thing makes intelligible the drawing. To a novice the drawing means nothing apart from the thing, for a constructive drawing is highly conventional; it is a translation from the language of the muscle to the language of the reason. The first exercises must be very simple, involving two dimensions only, and the drawing and the making as closely related as the drawing and cutting out of a square; but before children leave the grammar school they ought to be able to read a simple constructive drawing such as

the plan of a cottage, or the working drawing for a piece of furniture.

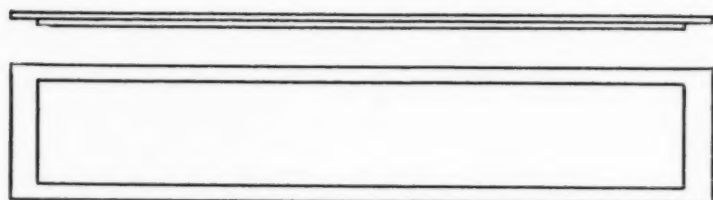
Constructive drawing is the most immediately useful kind of drawing. Almost everything we can find in the schoolroom and in the town started with a drawing by somebody. Trace the history of any one thing backward and see. Take the ornamental initial at the beginning of this article: It is printed from an engraved block, the block came by way of photography from a drawing made by Mr. Berry. Or, take for example the school desk: The iron part was cast in a mold of sand, made from a pattern of wood, made by a pattern-maker, from a drawing by the man who designed the leg. The children will be greatly interested with the history of any detail of furniture, dress, jewelry, books or other objects. They will discover that only living things like flowers and children—things not made with hands—can come to be without the aid of drawing.

Just when in the school life constructive drawing should begin nobody yet knows. We are fairly unanimous in the belief that drawings comprising two or more views ought not to be attempted much earlier than the sixth or seventh grade; but long before that mechanical drawings should be made involving first the use of the ruler and later the compasses.

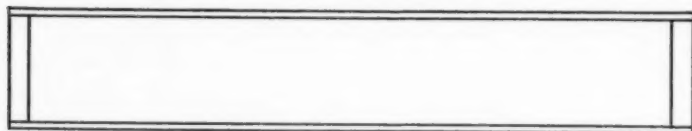
The elementary ideas involved in a knowledge of constructive drawing are those of mathematics;

lines, measurements, dimensions, shapes, solids, etc. The teacher who in "number" has taught her children to recognize inch, half-inch, quarter-inch, to use the rule for measuring lengths and areas, has laid one of the foundations for good constructive drawing. The other foundation has been well laid if the children have had abundant practice in drawing lines and geometric figures freehand, and can recognize a right angle in any position.

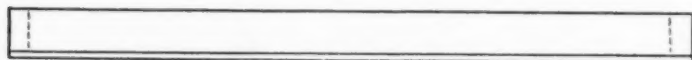
Success in constructive drawing will be assured from the beginning if the children can be led to glory in accuracy. "Accuracy is impossible to children," say the psychologists. True. It is impossible to most adults! Alvin Clark, the most famous maker of telescopic lenses in the world, was once asked if he could make a bar of glass exactly one meter in length. "No," he replied, "but I can make one about right and tell you how many hundred-thousandths of an inch it will vary under given temperatures." By "accuracy" we mean a reasonable degree of accuracy—considering! If a second-grade boy measures within a quarter of an inch, he is doing well. By the fourth grade a boy ought to be able to mark off against his rule a series of dots an eighth of an inch apart, so that the unprejudiced observer would know at a glance what he intended the unit of measure to be. But by the seventh year children ought to know that a rule is not a thing to guess by.



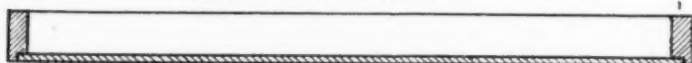
a. The Cover: edge view and under side



b. The Body: top view and side view.



c. Section: bottom latched on.



d. Section: bottom set in and latched.

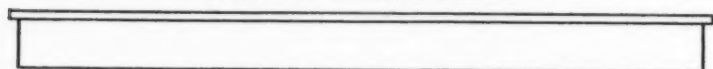


Fig. 1: The Box: Side view, complete (bottom set in).

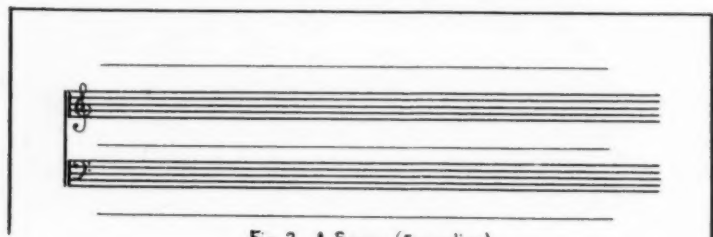


Fig. 2. A Score. (for ruling)

Accuracy cannot be had with poor tools. "A poor workman always blames his tools." Yes; but a good workman never has poor tools. A good workman takes pride in his kit. The system of free supplies and military distribution works evil when it destroys the possibility of pride in one's kit. A boy who has perfected the point of his pencil will not exert himself to keep it in condition if he knows it may go tomorrow to a sloven who will chew it off, or if he knows that he must spend the first part of every lesson in bringing some other fellow's pencil into shape. Every child from the fourth grade upward should have his kit of tools and be held responsible for its condition. A paste-board box long enough to take a foot rule, and flat enough to pack well in the desk, would do at first, but in the sixth grade one of the first problems in wood should be the making of a kit box,\* Fig. 1. The box may be extremely simple in design, made of eighth-inch stock, except the ends, which for convenience in nailing may be three-eighths in thickness. A neater piece of construction, and also more difficult, is shown at d. The cover, a, is made of two eighth-inch pieces, tacked together, one fitting into the top and the other projecting a little beyond the sides and ends of the box. While the

\* If this is impracticable owing to lack of tools, the upper grade boys should make kit boxes for the lower grades. The lower grade boys can help get out the stock, perhaps.

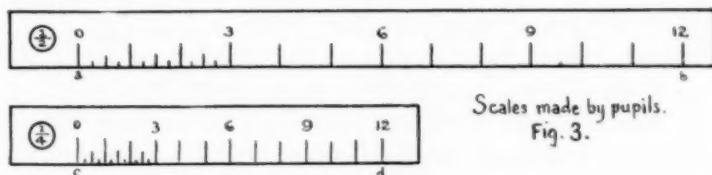
box is in use the cover may be placed in the desk, out of the way. The only tools required for making such a box are a jack knife, a few brads and tacks and a hammer. Of course the workmanship might be improved by the use of a try square, a saw, and a plane.

Another early problem is the making of pencil sharpeners.\* In all cases the problem should be thought out, by the aid of blackboard sketches, the drawing made by the children, and the thing worked out from the drawing. Such is the usual order in life — the idea, the drawing, the thing. Every school building, nay, every school room should have its work bench to which pupils may go to do any bit of manual work at odd moments. "Noise?" O yes; there is always an appropriate noise accompanying any healthful work. A school room is not the place to "set an' hear the clock tick a spell," as teachers of an elder day used to request their children to do if they manifested too much life. If we do not learn to mind our own business in the midst of noise in school, we shall have to learn as soon as we work in a shop or in a house with children.

For first practice in mechanical drawing, in the fourth year, there is no better exercise than that suggested in the outline (see Fig. 2). It should be

\* A method of procedure is given in detail in the Year-Book of the Council of Supervisors, Vol. I, p. 29.

done in the easiest, most expeditious way. Never teach a child a method not employed in actual work-a-day practice. In life nothing is ever done solely for its "educational value." "Educational value" is a school idol. Let's turn from such vanities and serve a living god. The best way of accomplishing a certain end is always sufficiently "educational."



Drawing to scale is somewhat difficult to teach to certain children. Most of the difficulties will disappear, however, if the children are first led to make their own scales. The problem is to make a miniature foot rule. It may be of cardboard, but wood is better. Upon a piece 3-4" wide and seven inches long, see Fig. 3, lay off the distance *ab*, exactly six inches long. Subdivide this as a rule is divided, locating first the middle point, marked 6, then points 3 and 9, midway between this and the ends, and then the others in order. This is the Half-size Scale, and may be so designated, as indicated by the fraction in a circle. A Quarter-size Scale may be made in the same way with three

inches as the first distance, cd. In drawing to scale measure the object with the foot rule, to determine its actual size, but lay it out on paper with the miniature rule. The dimensions read the same in either case. "Three inches" is always "from 0 to 3," whatever the scale. After a little practice the drawing may be made by the aid of the foot rule only, and the terms "Six inches to the foot" — written 6 in. = 1 ft., "Three inches to the foot," and "One inch to the foot," may be used to designate the scale.

The drawings required of children should be such as children require to make clear the form to be constructed. It is not necessary to indicate every invisible edge and outline, to go into the complications which arise through foreshortening, as for example, in the toy chair, Figure U, in the Outline. A top view of this would be puzzling for ninth grade children, and is really unnecessary. The top view of the arm is enough for all practical purposes.

A drawing board with T-square and triangles should be used as early as possible; in the eighth grade, surely; better, in the sixth. These may be obtained ready-made; but there is no reason why the high school pupils should not make them for the lower grades as a part of their training in manual work.

The subjects chosen for constructive drawing should be, in all grades below the high school, usually, those which may be actually carried out



in material by the children. There should be some good reason for the choice of a particular object to be drawn and made. It should be related to the life of the children in school or at home, and should be of such interest that interest will not have to be commanded by the teacher. Things that "go," that "work," that are "useful," that are "pretty," are of perennial interest. Co-operation on the part of several teachers in a building will make possible the construction and furnishing of a miniature house such as may be seen at the State Normal School, Fitchburg,\* Mass. A project of this scope includes designing and coloring for flat surfaces, rug weaving, and sewing, as well as wood and metal working. The plate shows toy furniture made by grammar children under the direction of Miss Harriet D. Condon, South Manchester, Conn., for the miniature house mentioned in the foot-note.\*

In making such furniture the imitation of full size chairs and tables with their joints and other details of construction is not necessary. The simple and sensible structure of a toy is the problem of the little designer, to be worked out from the conditions — thin wood, small size, unskilled labor, limited time — without reference to "adult" conditions. The successful solution of this immediate problem

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\* Miniature houses have since been made and furnished at Hyannis, Mass., at South Manchester, and New Haven, Conn., and elsewhere, always with enthusiasm on the part of pupils and with great success from a pedagogical point of view.

is the best possible preparation for the larger problems of the future.

From the foregoing one is likely to conclude that constructive drawing and manual training ought to be closely allied. They must be. They are, inevitably, in their very natures. One is incomplete without the other. The specialist in drawing and in manual training should be one, at least in spirit, in all grades below the high school.

HENRY TURNER BAILEY

North Scituate, Mass.



## THE PUPIL AS BOOKMAKER



**CHILDREN'S Books:** Two words that bring wonderfully fascinating memories and anticipations. But what do they really say? To one, books about children; to another, books for children; and recently they have come to mean, for some of us, books by children—books which the publishers and book-sellers cannot show, for to see real books by real children one must go to school.

The great educational cry of today is Handiwork—and it has so far reached the ears of the out-of-school world as to create a certain contempt for machine-made articles. Is it all a fad, this desire for hand-made everything? Did the machine-made book carry with it a subtle mechanical spirit which pervaded school rooms "once upon a time?" Certainly that spirit disappears while the children are making books, for all forget there is such a thing as discipline and "just have a good time." "But are the children to make their own textbooks?" Not at all—the machine in its place is good—only there's to be the "little leaven."

How shall we go about it? Select the subject that is interesting both teacher and pupil. In one room it is Greek and Roman history. Find out each child's favorite story—tell him yours. "I like mine so well that I'm going to put it into a book by itself." If we all did that we should have more

## Quotations



The little boy said, "I am writing a letter to Papa."

The little girl said, "I am writing a big letter to my Mamma."

"What are you going to write,?" asked the little boy.

"O, I am going to tell her I am read," the little girl replied. "How nice you can write!"

From "Early English"

Mary McCafferty, 5th Grade, Bartlett School, Lowell, Mass.

books than the Greeks and Romans ever saw. I wonder why they didn't have books? "'Cause they hadn't any printing presses." Perhaps, though, they had just the same kind we shall use; but at all events they left us very definite directions about bookmaking. A Greek would demand Beauty, Simplicity, Color. A Roman would ask the same but with more ornamentation. In the next room English history is all absorbing. What a royal lot of subjects! for even kings and queens may be that in a book. Just across the hall stories of King Arthur and his Knights challenge the attention. What a book one could make with their aim "to make the world sweeter, purer and more beautiful." Here's a room and a teacher really interested in technical grammar—not a very inspiring subject for a book, yet why not? All other really good structure is beautiful. Here then, writers of books, are "subjects made to your hand."

The next step will be a general talk about books, during which many different ones are examined. We find the illustrated book, the book treated in decorative style, and the one where beauty is entirely dependent upon good general proportions—spacing, margins, writing and printing. What are some of the requisites of a good cover? Serviceable color, in harmony with the inside; a title well printed and carefully placed; decorations, if any, suggestive of contents.



A NOUN MAY HAVE THREE KINDS  
OF MODIFIERS:-

A. **A**DJECTIVE.

B. **P**OSSESSIVE.

C. **A**PPOSITIVE.

**M**Y LITTLE DOLLY, NELLIE, IS

HAVING A NICE RIDE.

From "An Illustrated English Grammar"  
Mary E. Coner, 8th Grade, Bartlett School, Lowell, Mass.

Most books have a title page, preface and dedication. Let us understand why, and then plan to have them in our books. The stories are written and subjected to the criticism of the teacher who is proof-reader.

Then comes the decision as to the artistic treatment. A child is apt to think that he must make an illustrated work and that the illustrations must be pictures of people; but the pupil who does not do this can make quite as interesting and attractive a book if he can be made to feel that his own thought is of value and that simplicity is better than elaborate illustration. The story of Cardinal Wolsey (see illustration on page 104) by an eighth grade boy, has only one sketch, a cross and crown, placed at the very end of the tale, but he puts his best effort into planning the sheet and writing well. Perhaps some child will want to copy a picture of a castle or cathedral. Suggest that he use a small oblong opening cut from paper or cardboard and with that select an interesting bit of the picture. This might be drawn in outline, or ink silhouette.

There will be the easily discouraged pupil who will say "I can't think of anything." "What's your story about?" "A Knight." "What did Knights carry?" "A shield, a lance." "Do you know about the device of a shield?" "Can you find pictures of shields and lances?" He lived much out-of-doors, in the woods. Why not make a border

of shields across the top of the page. Put his lance up the side. How would a row of trees look? Do you know his colors? "Red and black." "Good—put red lines about your initial letter and a red line bordering each page."

Still a different scheme was followed in the illustrated English Grammar. The children collected pictures of all sorts, cut them out, sometimes as wholes, sometimes cutting the different figures and rearranging them on the page, perhaps adding a line or two to suggest a background. (See illustration from illustrated English Grammar.) One boy would use nothing but comic pictures, another chose animals, another children, and so on, while some had no limitation save size. Some very effective results were obtained by using the colored pencils, choosing one color and putting this on in various parts of the picture. (See illustration on page 101.) Pictures colored in this way were used by the children in lower grades for cover decoration, the title of their story being printed in color, like that used in the picture.

Having written the story and decided upon the character of sketches each pupil plans the size and proportion and cuts the leaves from a large sheet of paper. Or, a uniform size may be determined upon by the class and the paper prepared by the teacher. This would depend upon the character of the book, the age of the children and the time. All



the books from which illustrations are given, with the exception of the English Grammar, were made within the last month of the school year, the writing being done during the time allotted for English history and the rest of the work in the regular drawing period, though the interest of children and teacher was such that the time line may not have been clearly drawn.

The binding must be thought of next. As we have only needles and a belt punch for tools it, would better be like that of the Japanese books. We may use raffia of a harmonizing color, or if that cannot be obtained, common white twine tinted with water color. Either will be modest and practical.

"Early English", by that fifth grade child, page 94, is a page from one of the regulation blue covered, blue lined note books, in which the children were to keep a record of language work—in other words a language note book; but keenest interest was awakened by a suggestion that they illustrate the work by pictures about which the sentences were written which should show the language part of the day's lesson. Thus the variety of pictures give great originality to the work. The books were re-covered with plain paper of good color upon which were printed the same title, in much the same way, after a class discussion as to the best placing.

Such are some of the books that might be made. The lower grades offer opportunities for many others

— covers for the daily ten-minute papers, and for the stories the children have retold and which have been hektographed for them; while in the High and Normal schools the possibilities are endless. Why shouldn't a written lesson be handed in in book form, even in the high school or the normal school?

What are some of the results to pupils?

1. A wholesome pride in the accomplishment and ownership, as evidenced by their unwillingness to part with the work.

The children who made the "Early English" books were thrice visited by grown ups who at once became desirous of a book. The first visitor offered to give a sketch in exchange. The children looked unresponsive. Finally one little girl agreed to make another just like hers, and give him that for the sketch.

The second man succeeded in obtaining the promise of two books, but the next day one of the contractors came to her teacher, saying, "I've decided I'd rather have my book, and mamma thinks so, too."

The third visitor, a maker of books herself, offered one of her own in exchange, but all in vain.

At exhibition time whole families come to see Tom's book. And a father was overheard saying, "Did you see my Nell's book? She's only a little thing, and she dedicated it to me". "And mamma thinks so, too," always.



A picture cut from a magazine, colored by Lilla Wilson, 4th Grade, in one color only. Picture used as subject for test in spelling.

Those dedications were interesting and cannot fail to add new meaning to that part of all books. Here are a few samples: "I dedicate this book to my mother." "This book is dedicated to all my best known friends." "Dedicated to my grandmother, who made me go to school or this book would never have been finished."

The pupil's only guide at this point was the simple statement, "Dedicate your book to some one you wish to honor; no greater compliment can be given."

2. Faith in his own ability to bring things to pass.

3. A keener sensitiveness to simple beauty.

Why is it worth doing?

1. Because all work "for the joy of the working."

2. It brings teacher and pupil into closer touch.

The success of the illustrated English Grammar was largely due to the fact that the teacher in the room made one herself just because she enjoyed it.

3. It is another strong link between the home and school.

4. It awakens a keener appreciation of the value of books and the property of others, something which is in danger of being forgotten in these days of free text-books and cheap editions.

These are some of the things not made with hands which come to pass because of hand-made books. They will accomplish the hope of one of

the seventh grade prefaces and "give wisdom to the reader," while

"Done in the spirit of which I have told you  
they will inevitably be works of art."

AMY RACHEL WHITTIER

State Normal School  
Lowell, Mass.



A tail piece made by a Ethel G. Pendexter, 6th Grade,  
for her book "The Flight of Helen and Paris"



Initials by Lillian B. Peters, 8th Grade, from her booklet "Thomas a Becket"

abbot who came  
to greet him. "My  
father, I am come  
to lay my bones  
among you." He  
died a few days  
later and his  
last words were:  
"Had I served  
my god as dilig-  
ently as I have  
served my king

he would not  
have left me  
alone in my  
gray hairs



Final pages of "Cardinal Wolsey", by F. T. C., 8th Grade

## THE STORY OF EXCALIBUR.

went in search  
of adventures  
and generally  
found them, too.

For in those  
days were giant  
and wicked lords  
and the heathen  
hosts to overcome  
so that every



A page from "Excalibur," by Florence Archibald, 9th grade

# ANNOTATED OUTLINES

NOVEMBER

## GENERAL TOPIC, CONSTRUCTIVE DRAWING



**PRIMARY.** First Year. A.\* Drill in drawing squares and oblongs, and vertical and horizontal and oblique lines. Practice judging the distance one inch. Upon sheets 6 x 9, draw an oblong an inch smaller all around and within it draw an initial.

Draw the lines lightly at first and go over them again and again until the effect of the whole is right. See aa. The sheets may be turned either way according to the initial; W and M might look better in a horizontal oblong. The margin lines might be in red and the initial in black, or in any color preferred by the pupil whose initial is to be placed within. The initial may be that of the child's first name or last name, ab.

The letters of the alphabet are good subjects for drill. Here are several good games: I am thinking of a letter made with one horizontal and one vertical line. Draw it. (T, or L.) Of one vertical and two horizontals. (F.) One horizontal and two verticals. (H.) Two horizontals and one oblique. (Z.) Two obliques and one vertical. (Y, K.) Two verticals and one oblique. (N.) Two obliques and one horizontal. (A.) Or, I am thinking of a word of two letters with three vertical lines and four horizontals. (HE.) With two verticals and one horizontal. (IT.) Etc. Or, How many horizontal lines in the word HEART? How many verticals? How many obliques? How many curves? The terms horizontal, vertical, oblique, square, oblong, circle, should be known automatically.

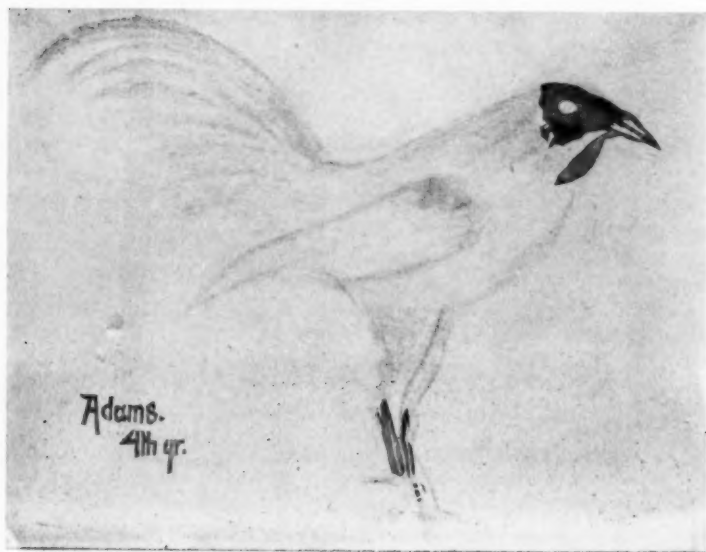
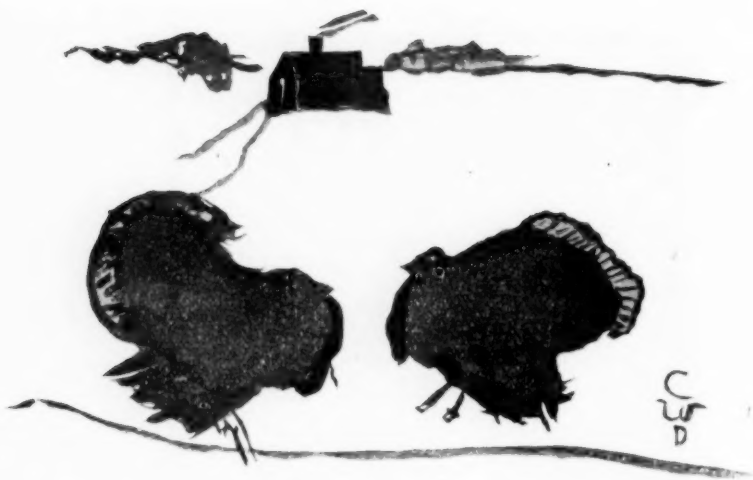
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\* These capital letters indicate topics. That which follows A in the text is illustrated at A in the margin. If it is necessary to refer to details under A, they are designated as aa, ab, ac, etc.





Menu cover, for practice in tinting a hektographed outline



**B. Make a thanksgiving souvenir, using black and colored pencils.**

A sheet 6 x 9 folded will make pages as shown in the sketch, bb. On the front cover have the margin lines drawn freehand or ruled. On the back cover have the small circle about an inch in diameter with the pupil's initial inclosed. The inside pages may be few or many according to ability. They may contain a sketch in colored pencil of people going to church, of people at dinner, or of people playing games, or any written words appropriate to the occasion. The drawings would better be practiced upon separate sheets of the right size, and a good one bound in with paste applied as indicated at bc.

**C. Draw a fruit or vegetable in color using crayons or water colors. Review color terms.**

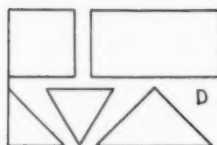
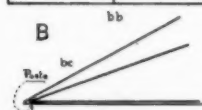
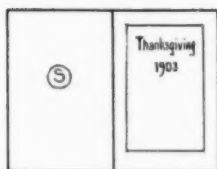
Select a form of erratic outline and strong color like a beet, a crook-neck squash, or a banana. Have one large drawing on a sheet, without margin lines or any other complications.

**Second Year. D. Drill in drawing squares, oblongs and triangles, freehand and with the ruler.**

These may be large, upon the blackboard, and smaller, grouped upon the paper. Those drawn with the ruler should be one, two, three and four inches in size, accurately measured and afterward cut from colored paper and neatly mounted. The names of different shapes of triangles need not be taught here; "triangle" is enough.

**E. Make a Thanksgiving souvenir, using crayons and water color.**

Follow the directions given under B, but have more leaves; fasten pages inside the front cover as well as inside the back cover; have two or more pages of writing, a motto—"It is a good thing to give thanks unto the Lord," or a menu of the feast. Have drawings of fruits and vegetables in appropriate colors. Review color terms.



F. Make large drawings of fruits and vegetables such as winter pears and potatoes, using crayons or water colors.

Make the drawings as naturalistic as possible. Perhaps some children can indicate the difference between the light and dark sides of the object.

Third Year. G. Drill in drawing squares and oblongs in any position, one side being given. Add diameters and diagonals.

Select pupils to draw at the blackboard and have their work tested by other pupils. Fold paper to show how these figures are divided by the diameters and diagonals; how to cut from an oblong a square by folding down one corner to show where to cut. Have children make squares and oblongs of colored paper, fold them accurately and mount them flat upon sheets of another color. Use every means to have these made accurately.

H. Make invitations for Thanksgiving with appropriate illustrations in color.

Keep illustrations and text separate; do not interweave them. Leave good margins. Make the invitations genuine if possible. The invitations may be for parents to come to a Thanksgiving exercise at the school. Have upper grade pupils make envelopes for them of just the right size.

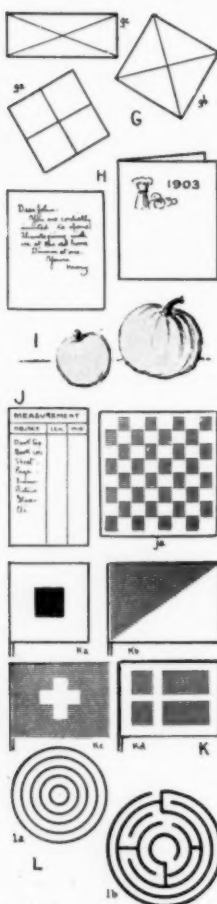
**I. Make large drawings of fruits and vegetables such as apples and pumpkins, involving the representation of such details as indicate roundness and solidity. Use crayons or water colors. Use color terms with discrimination.**

The markings upon the surface may sometimes be touched in while the first wash of color is still wet, but not too wet. Softened edges, delicate markings and blended colors are secured in this way.

**NOTE.** Intermediate and grammar pupils should feel that all their work in drawing and manual training after the first of November is related directly or indirectly to the making of objects suitable for Christmas gifts or appropriate to the new year. Patient continuance in well doing is easier with a desired end in view.

**INTERMEDIATE. Fourth Year. J. Teach measuring distances and writing dimensions (6 in., 1' 6"). Teach the ruling and measuring of lines. Draw a music score, make a billhead properly ruled, or a checkerboard.**

For the music score take a sheet 6 x 9. Place the back of the ruler upon the short edge, at the left, and along the scale edge,  $\frac{1}{4}$  inch in from the edge of the sheet, set of points spaced as follows from the top edge downward: 1",  $\frac{1}{2}$ ";  $\frac{1}{2}$ ",  $\frac{1}{2}$ ",  $\frac{1}{2}$ ",  $\frac{1}{2}$ ";  $\frac{1}{2}$ ",  $\frac{1}{2}$ ";  $\frac{1}{2}$ ",  $\frac{1}{2}$ ",  $\frac{1}{2}$ ",  $\frac{1}{2}$ ";  $\frac{1}{2}$ ". Place similar points  $\frac{1}{4}$  inch in from the right hand edge. Connect opposite points with horizontal lines. The first, ruled very lightly, shows where the name of the song should be written; the next five, a little heavier, will form the first staff; the next, very light, locates the words of the song; the next five, heavier, form the second staff; the last, light, is for other words. The sheet may be completed by drawing the clefs, notes, etc., and writing the words. See illustration,



page 86. The checkerboard may be copied from a real one; the dark squares being colored with ink, ja.

**K. Teach the mechanical drawing and making of the simpler geometric figures, square, oblong, and right angled triangle, with simple applications of these such as the cross forms and signal flags.**

Cold wave flag, black square on white, ka; pilot flag, Argentine Republic, red and white, kb; national flag of Switzerland, white cross on red ground, kc; pilot flag of Denmark, white on red ground, kd. These are very pretty made of tissue paper and fastened to a splint.

**Fifth Year. L. Teach the use of compasses. Drill in drawing circles, first, of any size, afterward, of given sizes. Draw a target, make a puzzle — the labyrinth (tell the story of Theseus and Ariadne in connection with it), or lay out a whirl-i-gig on thick pasteboard or thin wood, and cut it out.**

In case of the labyrinth let the pupil try an original one, making the concentric circles increase in radius by  $\frac{1}{4}$  inch from the center outward, or he may take his suggestion from the engravings in Ruskin's *Fors Clavigera*, Vol. 1, Letter XXIII, which letter, by the

way, is worth reading in this connection. If Ruskin is followed the lines might be a  $\frac{1}{16}$  inch thick and the spaces between them  $\frac{1}{8}$  inch.

**M. Teach the mechanical drawing and making of the square on the diagonal, the hexagon, equilateral triangle, and octagon, with simple applications such as the trefoil, quatrefoil, ornamental cross forms and rosettes, or penwipers and push buttons.**

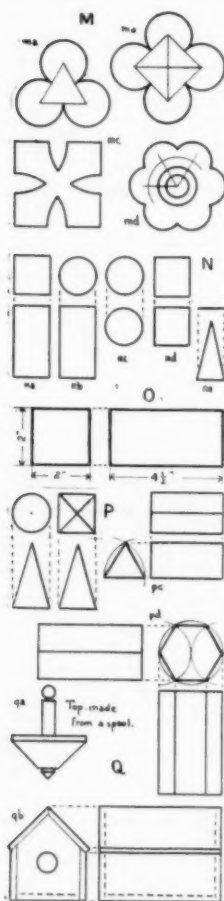
After the geometric figures and foils are well drawn they may be delicately tinted by using a wash of strong coffee. The cross forms may be cut from colored paper and applied upon shields. (For suggestions see "Heraldry" in an encyclopedia.) The penwipers may be made of cloth in such a way that the sewing on of an ornamental button in the center holds the whole together. The push button may be imitated by cutting the ornamental form from colored paper, from sheet lead, or from other thin metal easily worked.

**Sixth Year. N. Teach views and their relations, making working drawings of the square prism, na; cylinder, nb; sphere, nc; cube, nd; and a triangular tablet, ne.**

The order suggested is a good one to follow. The lesson might be taught from the blackboard, at first, with models to illustrate. Models in the hands of each pupil are desirable. The drawings by the pupils may be first in the form of rapid freehand sketches, with dimensions marked, then with instruments, accurately, according to dimensions. The drawing-board, T square and triangles ought to be used for this work.

**O. Make the working drawings for a kit box of proper size and shape to hold the school tools. Construct it of thin wood. See Figure 1, page 86.**

The drawing should always be made in such a way that the lines of the object are clear and unmistakable. Connecting lines should be unobtrusive. Dimension lines should be as delicate as possible, the



arrow points accurately located, the figures small and distinct, reading always from left to right or from the bottom upward.

### GRAMMAR. Seventh Year.

**P.** Teach views and their relations, making working drawings of the cone, pa; square pyramid, pb; triangular prism, pc; and hexagonal prism, pd.

Have these drawn with the utmost accuracy. Tint the surfaces. Be particular about the dimensions. Place them where a workman would desire them to be for clearness and convenience in working. Do not complicate the drawing by unnecessary dimensions.

**Q.** Make working drawings for a top, or a bird house. Construct these of wood.

For the top, qa, select a spool, cut off the flange, sketch it in proportion, side view, and design a spindle to fit it. Construct, from the drawing. The bird house, qb, is easily constructed if the ends are made first, each in one piece of wood  $\frac{3}{8}$  or  $\frac{1}{2}$  inch thick, with the grain running up and down. Make the house, and its door, the right size for the birds in your locality likely to nest in such houses.

**Eighth Year. R.** Teach views and their relations, making working drawings of the frustums of cones, ra, and pyramids, rb, and of the hollow cylinder, rc.



Be careful to teach which surfaces are represented their full size, and which are not, where dimensions are actual and where they are not. Show the necessity of representing invisible outlines and edges.

**S. Make working drawings for wall match safe or for a sled. Construct the object in appropriate materials.**

The construction of the sled, sa, might well be studied from a real sled. The pupils will thus discover what they can do and what they cannot do with the means at their disposal. The construction of the match safe, sb, should be thought out by the pupils, starting with a handful of matches and the requirements in the case. The depth of the pocket is determined by the matches, the length of the "strike" by convenience, the two points of attachment by necessity.

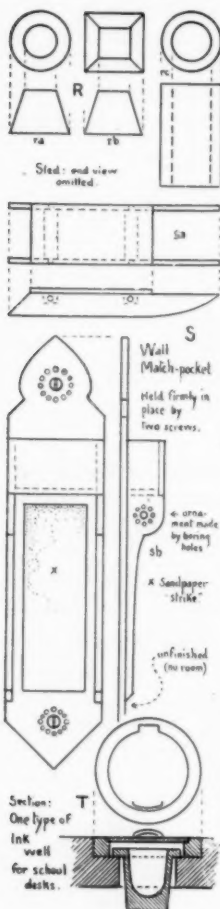
**Ninth Year. T. Teach views and their relations, making working drawings of some simple model or object requiring a sectional view.**

The corner of the desk containing the ink well is a good subject. The illustration in the margin shows treatment, merely; the wells in your desks may be different. The aim is to teach "sections." The top view is not complicated with "invisible lines."

**U. Make working drawings for a miniature piece of furniture, or for a kitchen knife tray. Construct the object in appropriate materials. See illustration on page 118.**

The construction of both these objects should be thought out by the children under guidance of the teacher. Make the chair to fit a doll of medium size. Make the tray of the right proportions for ordinary use in the kitchen. Such trays usually hold large and small knives and forks, stirring spoons, etc.

**HIGH SCHOOL. Freehand Classes.** The outdoor sketching should continue as long as the weather permits, the sketches being conscientious studies from



nature, valuable for their truthfulness, and as material for use in decorative compositions upon such subjects as "Harvest," "The Harvest Moon," "Thanksgiving," "The Shortening Days," "The Fading Year" and the like. The indoor work should be the arranging of harvest and Thanksgiving groups, and the rendering of these in flat tones, in light and shade, in naturalistic coloring, or in pen and ink, according to the previous training and the ability of the pupils.

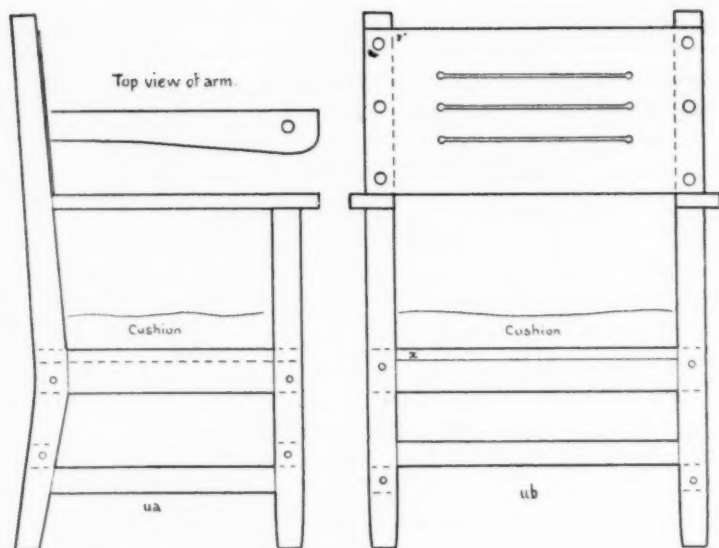
Pupils interested in photography should be encouraged to make photographs of harvest fields, and of harvesting scenes, of trees famous in the vicinity for their size or beauty, of leafless trees, to show branching, and of all sorts of views in the town. All such material will be valuable in landscape composition.

**Mechanical Classes.** The studies made last month should be the basis for careful studies in structure and the making of adequate structural drawings. This will necessitate preliminary lessons in geometry and projection, the aim of which should be evident to the

pupil, namely, preparation for making clear, accurate, workmanlike drawings.

It is one thing to make a sketch like that for the drop lamp (adopted from the cardinal) and quite another to make a drawing which will enable a workman to produce it in copper, and still another to draft the several pieces in the flat. Still other problems are presented by the requirements of use and manufacture. As an aid in this sort of work, photographs and working sketches of similar pieces of construction in the vicinity, of both bad and good design, will help.



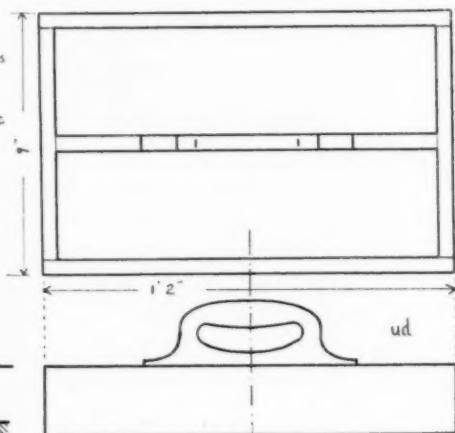
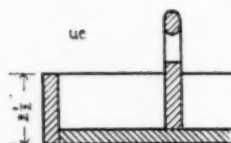


Arm chair for a doll  
(leather back)  
x Seat of board, resting on braces  
front and back.

U

uc

Kitchen Knife tray  
Half inch stock



## HELPFUL REFERENCE MATERIAL FOR NOVEMBER WORK

### CONSTRUCTIVE DRAWING

Applications of geometric problems. Ruskin. Laws of Fiesole, chapters I to III.

Common objects, drawn. Cross. Mechanical Drawing, plates I to V, and XVIII to XXIV.

Constructive design. Bailey. Year-Book, 1901, p. 29.

Illustrated. Mayeux. Manual of Decorative Composition, chap. I.

Development. Cross. Mechanical Drawing, chap. IV. Illustrations plates I, II, III, VIII, IX, XI, XIII, etc.

Flags. Stimson. Gate Beautiful, p. 277. Plates in any unabridged dictionary.

Furniture. Suggestive illustrations. Craftsman, October, 1901; among advertisements, November, 1902; October, 1903.

Geometric problems. Cross. Mechanical Drawing, p. 12.

Geometric figures. Stimson. Gate Beautiful, pp. 119, 122, 123, 274, 276, 281, 282, 283.

Hinges, etc. Craftsman, May, 1903. Illustrated.

Labyrinth. Ruskin. Fors Clavigera, Vol. I, Letter XXIII. Illustrated.

Lanterns. Craftsman, April, 1903. Illustrated.

Materials and their uses. Cross. Mechanical Drawing, chap. I.

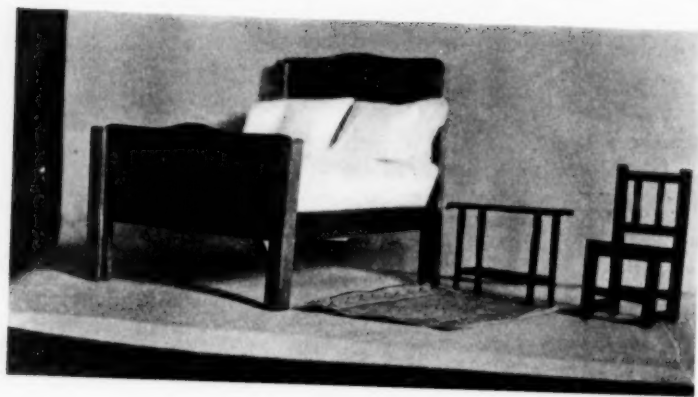
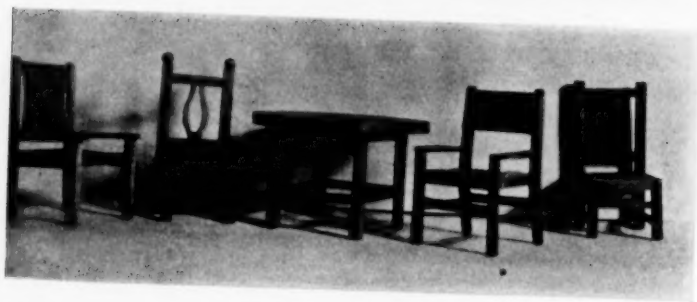
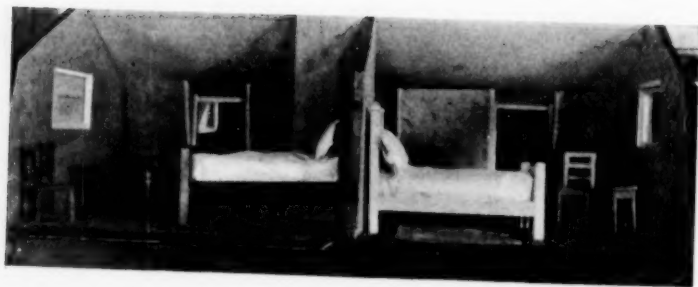
Ruling, applications of. Stimson. Gate Beautiful, pp. 289, 291.

Shields. Stimson. Gate Beautiful, p. 277.

Working drawings. Cross. Mechanical Drawing, p. 28. Edwards. Applied Arts Book, December, 1902.

### ILLUSTRATIVE DRAWING

Illustrative drawing. Whitney. Year-Book, 1902, p. 92. Applied Arts Book, September to December, 1902.



## THE SCHOOL LIBRARY



AMONG the wise maxims of mankind is this: Speak no evil of the dead. Dr. John W. Dickinson used to say, "When a man has written a book, it is time to bury him." In a sense he has put himself into the book. What he has written he has written; it is a record as unchangable as that which a man leaves when he dies. Speak no evil of a man's book is, therefore, a safe rule. The thing is done. "What can't be cured must be endured." The critic comes too late. And yet, if one is asked to give his opinion of a book for the sake of helping a friend, ought he not in simple justice to all to be honest? The author, if he must, may console himself with the assumption that the critic's judgment is worthless; but if it is a dispassionate judgment the probability is that it is not altogether worthless. The other man's point of view is always worth having. The critic who desires to deal honestly with his friends and kindly with the author has ever one expedient. He can omit to write certain lines, that those with eyes may read between the lines he writes and gather from what is and what is not, what really is.

The Editor will be glad to have any teacher suggest books which have proved themselves especially helpful in the teaching of drawing and the allied arts. "It takes all the folks in the world to know all there is known."

**The Gate Beautiful.** John Ward Stimson. Albert Brandt, Trenton, N. J. 1903. Quarto, cloth bound, 42 plates, 420 pp. \$7.50.

That Beauty is a manifestation of the Divine, that the laws of Beauty are universal in their applications, that all Beauty is in the last analysis one, is a doctrine held more or less consciously, more or less tenaciously, by thoughtful lovers of Beauty since the days of Plato. Mr. Stimson has believed this and taught this during many years. This book presents in a fascinating way the mature convictions of a devoted man. "These compact Summaries of Thought," says the Preface, "are the quintessence of a lifetime of earnest and conscientious study, wide travel, and long practical experience in professional teaching and superintendence over many departments of applied art." Pupils of all ages will find the plates and other illustrations full of interest and rich in suggestions for composition and design. There are plates of star forms, snow crystals, germ forms, seed packs, leaves, shells, insects, fishes, reptiles and birds; types of human heads and human figures; abstract motion curves, geometric patterns, units of design, historic ornament; shields, flags, structural elements in cups, vases, furniture and houses; reproductions of drawings by the old masters, of famous works of sculpture, painting and design. The book is a mine of information; the plates contain thousands of drawings. Teachers will find the text rich in suggestions along the lines of teaching, interpretation of works of art, observation of nature; but they will also find hard reading in places. Mr. Stimson's vocabulary is as rich as his gallery—he has exhausted the dictionary—but his thought is as rich as his means of expression, and will richly repay the thoughtful reader who is willing to read, mark, and inwardly digest. The scientist will find here evolution in art, the devout will find religion, the lover of beauty will find poetry and fine art, the mystic will find certain portions transcendental enough; but the logician will find much to criticise, and some mechanical-headed folk there be who will see in it only the intricate vagaries of a crank. One closes the book with a strong desire to quote to the author the last words to the



prophet Daniel: "Go thy way, Daniel; for the words are closed up and sealed . . . but the wise shall understand . . . thou shalt rest, and stand in thy lot at the end of the days." In a personal letter to me Mr. Stimson says, "The Gate Beautiful is born of my best blood, love, and force. Verily I spared nothing life could give. The issue and cause were too sacred and I have suffered for it too deeply and long. I want it to reach and save where I have already seen thousands of beautiful lives and talents go down. I know wherein I have believed, and have witnessed the 'saving' too often and too blessedly to doubt."

The book stands for the deepest, broadest, and highest conceptions of the functions of art in education.

**The Flower Beautiful.** Clarence Moores Weed.  
Houghton, Mifflin & Co. 1903. 8vo, 60 half-tone plates, 138 pp. \$2.50.

The cover is attractive. It has a bit of strong decorative drawing of plant forms, well worth seeing. The book is in a sense a pioneer in its field, and therefore to be received thankfully. Conder's "Japanese Flower Arrangement" is good collateral reading. While the arrangements of flowers reproduced in the plates are rarely distinguished, while they lack in many cases "that external perfection which can neither be commanded nor described," they are far above the average "bouquet" in beauty, and can not but prove helpfully suggestive, especially to beginners in the art. The text is readable, and sensible. One who follows Mr. Weed's suggestions as to the uses of flowers in decoration will not go far astray. No one can read his book without a quickened interest in flowers and a keener enjoyment of their marvelous beauty.

**Barbara's Heritage.** Miss Hoyt. W. A. Wilde Co.,  
Boston. 1899. Crown, 8vo. Illustrated. 358 pp. \$1.50.

A person who "sees nothing" in Giotto, Cimabue, and the other early Italian masters, and who wishes to begin to see, will find in this

simple story an artist who will help to open his eyes. It is a good supplementary reading book for beginners in the study of pictorial art.

**Art for Art's Sake.** Van Dyke. Scribners, New York. 1897. 12 mo., 24 illus., 292 pp. \$1.50.

A person who has never painted from nature and life, never tried to produce a picture, but who wishes to be able to appreciate the work of artists, so far as possible, without such practice, can hardly do better than to begin with Miss Emery's book, "How to Enjoy Pictures"; read next, "How to Judge a Picture," by Van Dyke, and then this book. His next should be John La Farge's "Considerations on Painting." "Art for Art's Sake" will give the reader the point of view from which painters regard painting, so far as it can be assumed by one who is not a painter. The language is sufficiently technical to be definite, and simple and fresh enough to be interesting.

**The Craftsman.** October, 1903.

One of the richest numbers yet. From the charming decorative frontispiece to the last advertisement it is full of suggestions for teachers with eyes. The sofa pillows are to be taken as warnings. A sofa pillow design ought not to have the "right-side-up-with-care" limitation.

**Current Events.** Educational Press, Springfield, Mass.

"A Condensed Newspaper, Weekly, for Use in Public and Private Schools," is an admirable publication. Its motto seems to be, "All the news that's fit to print"—for pedagogical purposes.

## THE CATCH-ALL



FROM the lowest grade to about the sixth, Thanksgiving will be a prominent topic this month. Not that the little people have any more to be thankful for, but because, alas, they anticipate the day more intensely than children of a larger growth, and because the origin of the day and its observance are both historically and ethically significant, and therefore not to be overlooked in teaching. No mention of illustrations for language work in connection with the festival is made in the Outline above the third grade. Beyond that grade the topic comes more properly under the head of history, and illustrated historical papers might well form a part of the month's work. Pictures of Pilgrims and Indians, of the Pilgrim fort and meetinghouse, of "Pilgrims Going to Church" (Boughton), are more appropriate to the intermediate and upper grades, than pictures of turkeys.

IN North Adams, last year, the fifth grade children, under the instruction of good teachers, produced Thanksgiving Menus, which suggested high thinking as well as high feasting. Inside the attractive cover, reproduced herewith, were pages containing a Thanksgiving Day poem, and President Roosevelt's proclamation. The bill of fare came last.

**G**REAT enthusiasm has been aroused among the children of Lowell by the bookmaking described by Miss Whittier. Her article ought to have been illustrated by the reproduction of two or three books entire. From title page to tail-piece they are charming. Here is a sample Preface :

"This book is about a Roman Triumph. The writer, a seventh grade boy, hopes that when the winter winds blow and the trees are rocking, that the young reader may nestle close to the fireplace and read the story of a Roman Triumph."

Here is another :

"The aim of this story is to be read by all interesting boys and girls who like to read. This book was written by a boy, who had to work every day in school. His teacher would give one-half hour every day to each scholar to work on his book."

Authors devoted to rambling and long-winded prefaces might sit with much profit at the feet of these children.

**H**ARDLY a day has passed since the fifteenth of September without bringing letters of inquiry concerning those courses of study. To mention the good work of a friend seems to be a doubtful kindness. But speaking of hand-made books reminds me of one which came recently from Mr. Edmund Ketchum of Lowell. It is only an outline for his teachers, but the papers for body and cover, harmonizing perfectly with the hextograph ink, the clear pen work, the good spacing, the neat binding

of raffia, all combine to form a brochure so attractive that I doubt the possibility of a single teacher's losing her outline this year.

THE Outline which we shall follow is substantially that published as an extra supplement for September, 1902. Animal and figure drawing, water color work from objects, and various phases of design, about which questions have been asked by subscribers, will be considered in due time.

"CAN you suggest helps in water color work?" asks a teacher in New Jersey, and another in Iowa, and yet a third in Kentucky. Yes; "A Course in Water Color," Prang Educational Company, New York. The best book on the subject for beginners.

"HOW may pupils be taught so that they will remember (alas! How?) to foreshorten both receding faces of a box seen at an angle?"\* There are occasions when all one can do is to quote Scripture: "Line upon line, line upon line; here a little, and there a little." And again, "Thou shalt teach (margin, whet, or, sharpen!) them diligently

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\* Have each pupil make a picture-frame of paper or card and observe the object through the opening; the frame being held vertically and so near the object that the edges may be compared with the vertical and horizontal lines of the frame.

unto thy children, and shalt talk of them when thou sittest in thy house ; . . . thou shalt write them upon the posts of thy house and on thy gates."

**E**VEN the best of teachers, I fancy, has to console himself occasionally with the cheerful observation of the French, "While human genius has limits, human stupidity has none."

**E**VERY supervisor of drawing, and every teacher who loves beauty, within reach of Boston, should secure a free ticket to the Museum of Fine Arts. One may be had for the asking. Every museum in the country ought to be equally generous.

**R**EAD Mr. Whistler's "Ten O'clock." "Listen! There never was an artistic period. There never was an Art-loving nation." Do you believe it? "Art happens—no hovel is safe from it, no Prince may depend upon it." It might happen in a schoolroom. "To say to the painter that Nature is to be taken as she is, is to say to the player that he may sit on the piano."